## REMARKS

This amendment responds to the Office Action which was mailed on March 8, 2005. In the specification, the title has been amended to more clearly describe the invention. In the claims, pending Claims 1-28 have been canceled and new Claims 29-56 substituted therefor. It is respectfully submitted that new Claims 29-56 are in condition for allowance. Request a favorable reconsideration of this application in light of this amendment and the remarks set forth below which constitute a full and complete response to the outstanding Office Action.

Claim 9 was objected to because the term "couplable" was undefined and rendered the claim indefinite. Claim 9 has been canceled and new Claim 38 has been substituted therefor. It is respectfully submitted that Claim 38 should no longer be objected to because the indefinite "couplable" language has been deleted and replaced with "...adapted for fluid flow coupling to an external pump."

Claims 1-7, 11-17, 19-21, and 23-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yufa (U.S. Pat. No. 5,946,091) and Pentoney et al. (U.S. Pat. No. 5,675,155) in view of Price (U.S. Pat. No. 6,120,166). Claims 1-7, 11-17, 19-21, and 23-25 have been canceled and new claims substituted therefor. Claim 1 has been canceled and replaced by new Claim 29. Claim 29 has been drafted to make clear that the pair of opposing first tubes are both acting as particle flow inlets directed at the focal point and direct particle flow to the focal point in opposing directions. Claim 29 now recites, "a pair of opposing first tubes passing through the spherical/ellipsoid shell and directed at the focal point, each of said tubes acting as inlets for directing particle flow in

opposing directions to the focal point, wherein said tubes are substantially non-fluorescent;...".

The core novelty of the present invention is the stalling of the particles within the excitation beam using opposed flows. Applicant's patent application describes and claims a design where the opposing tubes are both used as particle inlets. This arrangement allows for the particle's velocity to decrease in addition to remaining in the light source for an extended amount of time due to increased path length. This extended time is required in order to capture the fluorescence signal for increased sensitivities. In contrast, Yufa uses a direct one-way particle flow into the excitation beam, with one tube being an inlet and its opposing tube being an outlet. Yufa specifically wished to avoid any air eddying movements in his design as stated in his patent (Col 2, 17-21), claiming more accurate particle counting without it. In contrast, applicant's invention is based on an opposed flow design for particle velocity interaction and fluid dynamics associated with the increased particle dwell time in the light source. It should now be clear that Claim 29 includes the limitation of opposing flows, with both tubes acting as inlets for particle flow to the focal point where the particles are stalled while interacting with the excitation beam.

In addition, the Office Action indicated that Claim 10 was allowable subject matter, and was merely objected to because it depended on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 10 was dependent from Claim 1, and included the limitation wherein the sample tubes are substantially non-fluorescent. Claim 29 has now been drafted to include the limitations of Claim 1 and the limitation of Claim

10, i.e., Claim 29 includes the limitation wherein the tubes are substantially non-fluorescent. Therefore, Claim 29 should clearly be in condition for allowance. In addition, Claims 30-41 are either directly or indirectly dependent from Claim 29 and are further limiting thereto, therefore, these claims should also be in condition for allowance.

Independent Claim 14 was also similarly rejected using the prior art of Yufa, Pentoney, and Price. Here again, the prior art cited does not teach, suggest, or provide motivation for the core novelty of applicant's invention, i.e., the stalling of the particles within the excitation beam using opposed flows. Applicant's patent application describes and claims a design where the opposing tubes are both used for particle inlets. Claim 14 has been canceled and replaced by Claim 42. Claim 42 has been amended to recite the limitation "a pair of opposing tubes passing through the first end cap into the cavity and directed at the focal point, each of said tubes acting as an inlet for directing particles to the focal point in opposing directions, and wherein said tubes are substantially non-fluorescent". Therefore, as discussed in the foregoing, Claim 42 should be in condition for allowance, as should Claims 43-47 which are dependent from Claim 42 and further limiting thereto.

Independent Claim 20 was also similarly rejected based on the prior art of Yufa, Pentoney, and Price. Here again, the prior art cited does not teach, suggest, or provide motivation for the core novelty of applicant's invention, i.e., the stalling of the particles within the excitation beam using opposed flows. In Claim 20, now Claim 48, applicant's patent application claims a method including the step of "directing a pair of opposing particle flows at a focal point within a spherical/ellipsoid cavity having an ellipsoid mirror and a spherical mirror." This method ensures that the particles are stalled at the

focal point for longer interaction with the excitation beam. Therefore, as discussed in the foregoing remarks, Claim 48 should also be in condition for allowance since the prior art cited does teach, suggest, or even provide any motivation for the opposed particle flow method of Claim 48. Of course, Claims 49-56 are either directly or indirectly dependent from Claim 48 and are further limiting thereto, therefore these claims should also be in condition for allowance.

In summary, Claims 1-28 have been canceled and new Claims 29-56 substituted therefor. Claims 29-56 remain in the case and based on the foregoing arguments should not be considered obvious over the prior art cited. Accordingly, it is respectfully submitted that these claims are patentable and in condition for allowance. Early reconsideration and withdrawal of the rejections is earnestly solicited as is allowance of the claimed subject matter.

Respectfully submitted,

May 18, 2005
DATE

U. John Biffoni
Attorney for Applicant
Registration No. 39,908
Tel. No. (410) 436-1158